



Incident: EPA Response to Gold King Mine Release Incident

Subject: **Transition from Incident Response to Watershed Monitoring Plan**

Strategic Objectives:

1. Manage the organizational transition from incident management to project management while a watershed monitoring plan is developed.
2. Maintain consistent messaging while coordinating the notification to and participation of stakeholders within the operational area.

KEY POINTS

1. This proposed transition document is focused on river assessment/operations, and is not intended to address activities related to the stabilization of the release at the Gold King Mine.
2. Transition activities will include:
 - a. Coordination and communication with stakeholders and communities as needed.
 - b. Establishment of an organizational structure designed to ensure management accountability for the continuing operations.
3. This Transition Document should be accompanied by a global message that explains and supports the transition from incident command to project management.
4. The transition organization will retain the capacity and flexibility to rapidly and effectively respond to concerns and/or issues raised by U.S. EPA, state, tribal and local partners.

SITUATION

While U.S. EPA was investigating the Gold King Mine near Silverton, Colorado on August 5, 2015, a release of mine wastewater occurred. The wastewater was released to Cement Creek, which then discharges to the Animas River. The release resulted in discoloration of the Animas River, temporarily making the river water a mustard-orange as the slug of mine water flowed downstream. The leading edge of the release passed through Durango, Colorado, and crossed the border into New Mexico where it eventually discharged into the San Juan River. As the slug of discolored water moved downstream in the waterways, State and local jurisdictions closed public water system intakes on the Animas and San Juan rivers. The state and local jurisdictions also issued advisories regarding recreational use of the rivers and private drinking water wells within the Animas River watershed.

SUMMARY OF RESPONSE ACTIVITIES

U.S. EPA Regions 8, 6 and 9 have performed sampling, mitigation, and data evaluation activities since inception of the Gold King Mine Release Incident. U.S. EPA Headquarters and other U.S. EPA regions have supported the response, along with support from other federal and state agencies, tribal and local jurisdictional agencies.

Over 300 personnel have performed field response and/or engaged technical/scientific support throughout the response area. To date, U.S. EPA has collected over 700 surface water samples and approximately 500 sediment samples from the Animas and San Juan Rivers, between Cement Creek in Colorado and Lake Powell in Utah. U.S. EPA also collected water samples from private drinking water wells in the Animas River watershed at locations selected in conjunction with State environmental



partners. U.S. EPA's mitigation activities to date include delivery of more than 800,000 gallons of potable water, and more than 1,450,000 gallons of livestock/agricultural water. U.S. EPA has also provided over 4,500 bales of hay for use as livestock food.

Sampling Objectives

U.S. EPA developed data quality objectives (DQO) to evaluate human health risk for surface water and sediment along the Animas and San Juan Rivers affected by the Gold King Mine Release Incident.

Situation Status

State and local jurisdictions have lifted water use advisories, including drinking water, for the Animas River watershed.

DATA EVALUATION

Historical Conditions

A variety of metals have been historically present in surface water within the Animas River, San Juan River and Lake Powell. U.S. EPA has identified that 4 of the metals including arsenic, cadmium, mercury and lead have greater toxicity than other metals present in water discharged during the Gold King Mine Release Incident. These 4 metals are naturally occurring at relatively low levels in the waterways and were also present in the water discharged during the Gold King Mine Release Incident.

Due to changing weather conditions (i.e., spring snow melt, late summer dry season), the metals concentrations in surface water vary seasonally and annually. Discharges from historic mines throughout the Animas and San Juan watersheds also affect the concentration of metals in these waters.

Data Evaluation Criteria

The risk-based screening criteria for metals were developed for the hiker/camper exposure to surface water and sediment. These screening criteria represent levels that are without adverse effects over an extended period of time from a continuous 64-day exposure. The surface water screening criteria assumes that adults and children receive all of their daily water intake (2 liters/day) from the river over a 64 day period. The sediment screening criteria are based on a hiker/camper exposure to sediments alongside the riverbank, and represent a bounding estimate for recreational users; meaning they are more conservative than screening levels for fisherman, rafters, swimmers, or other recreational users of the river primarily because the consumption rates of water and sediment for these groups is higher.

Environmental Unit Evaluation of Results

Evaluating the affects to the waterways as a result of the Gold King Mine Release incident is based upon a comparison of analytical results for metals of concern. Sample results will continue to be compared with the risk-based screening criterion for human recreational water use developed as described above.

Based on analytical data trends observed for samples collected between 5 August 2015 through 28 August 2015, U.S. EPA expects that recreational or agricultural use of the San Juan and Animas Rivers will not result in adverse effects to humans, livestock and/or crops.

Updated findings of analytical results will be provided as new data is received and evaluated. A watershed monitoring plan is expected to be developed and implemented based on discussion with the affected U.S. EPA Regions, U.S. EPA Headquarters, Tribal Nations, State and local partners. The



anticipated watershed monitoring plan is expected to address sampling locations, matrices, analyses, and evaluation of the relative affects to the watershed as a result of the Gold King Mine Release Incident relative to pre-release historical data. Private groundwater well sample results in the alluvial and non-alluvial areas of the waterway will continue to be evaluated.

U.S. EPA operations currently include treatment of water flowing from the Gold King Mine prior to discharge to Cement Creek. As a result, U.S. EPA anticipates that metals concentrations in surface water within the Animas River and San Juan River will remain at levels that are protective of human health for short-term recreational exposure, which includes skin contact and accidental ingestion of river water.

ENVIRONMENTAL UNIT RECOMMENDATIONS

Given the trend of analytical results for surface water towards pre-event conditions, a reduction in sampling frequency from the current daily sampling regiment to semi-weekly sampling is proposed for the next two weeks (weeks 1 and 2). If analytical results from semi-weekly samples continue to demonstrate a trend toward pre-event conditions, it is recommended that the sampling frequency be reduced further to once per week starting on week 3, and continuing until a watershed monitoring plan is implemented.

A summary of the current and proposed operations is presented below in Tables 1 and 2, respectively.

Table 1 – Current Operations				
Region	Surface Water and Sediment Sampling	Groundwater Well Sampling	Mitigation	Outstanding Commitments
8	Surface water sampling locations daily. Sediment sampling locations sampled as needed	Alluvium well sampling. Non-alluvium well sampling.	Potable water deliveries. Livestock/agricultural water deliveries. Livestock food deliveries.	Assessment at locations with appreciable amounts of settled sediment, in response to local request.
6	Surface water/sediment sample locations daily.	Private drinking water well sampling within limits defined in conjunction with NMED. Private drinking water sampling activities phased out with agreement from NMED.	Livestock/agricultural water deliveries. Livestock food deliveries.	Sampling of finished water from public water systems. Sediment sample collection at locations identified by NMED to inform Watershed Monitoring Plan
9	Surface water/sediment sample locations daily or as conditions permit.	No well sampling activities.	Potable water deliveries. Livestock/agricultural water deliveries. Livestock food deliveries.	N/A

Table 2 – Proposed Transitional Operations			
Region	Operational Period #1 (2 weeks)	Operational Period 2 (2 weeks)	Post Transition Activities



Proposed Transition Plan (30 August 2015)
Gold King Mine Release Incident
Area Command

8	Surface water/sediment sample locations. Decrease sample frequency to twice weekly. No planned mitigation activities.	Surface water sample locations. Decrease sample frequency to once weekly.	N/A
6	Surface water/sediment sample locations. Reduce sample frequency to twice per week. Sampling of finished water from public water systems until complete. No planned mitigation activities.	Surface water/sediment sample locations. Reduce sample frequency to once weekly Sampling of finished water from public water systems until complete. Sediment sample collection at locations identified by NMED to inform Watershed Monitoring Plan	Sampling of finished water from public water systems until complete.
9	Surface water/sediment sample locations twice weekly or as conditions permit.	Surface water/sediment sample locations sample once weekly or as security conditions permit.	N/A